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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,282

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Michael Johannes Fuss

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COATS & BENNETT, PLLC
1400 Crescent Green, Suite 300
Cary, NC 27518

EXAMINER

ANDREASEN, DAVID S

ART UNIT

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2416

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/596,282	Applicant(s) FUSS, MICHAEL JOHANNES	
	Examiner DAVID ANDREASEN	Art Unit 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/21/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 10-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 10 recites the limitation, "the transmission mode selected is the one having the greatest bandwidth that is compatible with the detected transmission quality of the radio channel." This limitation is indefinite because, for any radio channel quality, one may always choose a modulation scheme that produces a greater bandwidth if one is willing to accept a higher bit error rate. Further, the specification does not provide an antecedent basis for "greatest bandwidth" upon which one of ordinary skill in the art can discern the scope of patent protection desired. For examination purposes, the claim limitation is interpreted as best understood.
4. Claims 11-14 each depend, whether directly or indirectly, from claim 10 and require each and every limitation of claim 10 and are therefore rejected on the same grounds.

Art Unit: 2416

5. Claim 11, which depends from claim 10 and requires each and every limitation of claim 10 *including the selected transmission mode* of claim 10, further recites that a different transmission mode is selected in lines 3-4, specifically “the most robust transmission mode having a bandwidth sufficient ... is selected.” If the selected transmission mode is that transmission mode having the greatest bandwidth, as required by claim 10, the recital of a further criterion for the selected transmission mode, which criterion may select a different mode than that of claim 10, renders it impossible for one of ordinary skill in the art to determine the scope of patent protection desired. For examination purposes, the claim limitation is interpreted as best understood in view of claim 10.

6. Claims 12-14 each depend, whether directly or indirectly, from claim 11 and require each and every limitation of claim 11 and are therefore rejected on the same grounds.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2416

8. Claims 9-11 and 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,748,220 to Chow et al. (hereafter **Chow**).

9. Regarding claim 9, Chow discloses transmitting data over a radio channel that supports a plurality of physical transmission modes at different bandwidths (Fig. 1), establishing a plurality of groups of virtual channels on the radio channel (col. 5, lines 19-22, virtual channels are formed between base station and mobile stations as one or more timeslots in a series of frames; see also col. 7, lines 12-15), each group having an allocated bandwidth (col. 5, lines 40-42, the base station and mobile station negotiate a bit rate to be initially used), such that the sum of the allocated bandwidths does not exceed a total bandwidth of the radio channel operating in a basic transmission mode (the allocation of virtual channels and bit rates, which include modulation scheme and coding scheme, are an initial allocation hereby defined to be the “basic transmission mode”); detecting a transmission quality of the radio channel (Fig. 3, steps 304 & 306); and based on the detected transmission quality, operating the radio channel in a selected transmission mode having a greater bandwidth than that of the basic transmission mode (col. 5, lines 63-64, if the channel quality improves, a faster bit rate may be negotiated, through variation in modulation and/or coding schemes, see col. 5, line 51 – col. 6, line 5); and allocating the difference in the bandwidths between the selected transmission mode and the basic transmission mode to the groups of virtual channels such that one or more of the groups of virtual channels operate at a bandwidth

Art Unit: 2416

that is greater than their allocated bandwidth (col. 5, line 63 – col. 6, line 5, at least one mobile station may negotiate a faster bit rate).

10. Regarding claim 10, Chow further discloses wherein the transmission mode selected is the one having the greatest bandwidth that is compatible with the detected transmission quality of the radio channel (at least col. 13, lines 37-39, the data throughput is maximized).

11. Regarding claim 11, Chow further discloses wherein if the bandwidth of the transmission mode having the greatest bandwidth is greater than or equal to a total bandwidth need of the groups of virtual channels, the most robust transmission mode having a bandwidth sufficient to satisfy the bandwidth needs of the groups of virtual channels is selected (at least col. 13, lines 37-39, the data throughput is maximized while minimizing the overall bit errors; see also col. 5, lines 55-57, more or less robust error correction and detection, i.e., coding, scheme is negotiated).

12. Regarding claim 15, Chow further discloses admitting a new terminal-to-terminal connection in a group of virtual channels based on a call admission control (CAC) method (col. 8, lines 6-24, and in particular lines 20-22, requests are only admitted if resources are available).

13. Regarding claim 16, Chow discloses a data transmission network (Fig. 1) comprising a first group of nodes having a first radio interface configured to support a plurality of physical transmission modes (Fig. 1, base stations 104); a second group of nodes having a second radio interface configured to support the plurality of physical

Art Unit: 2416

transmission modes (Fig. 1, mobile stations 106); a radio channel comprising two or more groups of virtual channels interconnecting the first and second radio interfaces (col. 5, lines 19-22, virtual channels are formed between base station and mobile stations as one or more timeslots in a series of frames; see also col. 7, lines 12-15), each group being allocated a bandwidth to transmit data between the first and second groups of nodes (col. 5, lines 40-42, the base station and mobile station negotiate a bit rate to be initially used) such that the sum of the allocated bandwidths is less than or equal to a total bandwidth of the radio channel when the radio channel is operating in a basic transmission mode (the allocation of virtual channels and bit rates, which include modulation scheme and coding scheme, are an initial allocation hereby defined to be the “basic transmission mode”); and a control unit (Fig. 3 is the process implemented by a control unit) configured to detect a transmission quality of the radio channel (Fig. 3, steps 304 & 306); operate the radio channel in a selected transmission mode having a greater bandwidth than that of the basic transmission mode based on the detected transmission quality (col. 5, lines 63-64, if the channel quality improves, a faster bit rate may be negotiated, through variation in modulation and/or coding schemes, see col. 5, line 51 – col. 6, line 5); and allocate the difference in the bandwidths between the selected transmission mode and the basic transmission mode to the groups of virtual channels such that one or more of the groups of virtual channels operate at a bandwidth that is greater than their allocated bandwidth (col. 5, line 63 – col. 6, line 5, at least one mobile station may negotiate a faster bit rate).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chow** in view of U.S. Patent No. 6,542,736 to Parkvall et al. (hereafter **Parkvall**).

17. Regarding claim 12, Chow discloses all the elements of claim 11 as discussed above, but does not disclose altering the transmission power of the radio channel to satisfy small changes in the bandwidth needs of the groups of virtual channels.

18. Parkvall teaches that radio link adaptation, i.e., modifying one or more signal transmission parameters in light of changes in channel quality, is known in the art to include changes in transmission power as well as changes in modulation and channel coding (see col. 2, lines 24-36).

Art Unit: 2416

19. It would have been obvious to one of ordinary skill in the art at the time of invention to include changes in transmission power, as in Parkvall, among the adaptations available in a system of Chow in order to increase the ability to satisfy user bandwidth needs.

20. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chow** in view of U.S. Patent No. 6,005,852 to Kokko et al. (hereafter **Kokko**).

21. Regarding claim 13, Chow discloses all the elements of claim 11 as discussed above, and further discloses buffering at least part of the data to be transmitted over a group of virtual channels (col. 6, line 40, lines 48-49, and lines 52-56). Chow does not disclose, however, determining that a bandwidth of a currently used transmission mode is less than the total bandwidth needs of the groups of virtual channels if the data in the buffer exceeds a predetermined limit.

22. Kokko, in the same field of art as Chow, discloses wherein a buffer threshold triggers a mobile station to negotiate increased bit rate (col. 7, lines 35-39).

23. A large portion of the disclosure of Chow is directed to optimizing the resource allocations among the virtual channels (see col. 14, lines 9-16) and does not disclose details of how a particular bit rate is chosen when a mobile station negotiates new modulation and/or coding schemes. One of ordinary skill in the art at the time of invention would therefore be motivated to look to other references for a basis as to

Art Unit: 2416

whether a mobile station should negotiate a faster bit rate when channel conditions improve. Kokko provides that exceeding a buffer threshold may provide such a basis for negotiating a faster bit rate. It would have been obvious, therefore, for one of ordinary skill in the art at the time of invention to implement the buffer threshold of Kokko as the basis for negotiating a faster bit rate in Chow, upon detection that the channel condition allows.

24. Regarding claim 14, Chow further discloses wherein the buffered data comprises data that is to be transmitted over at least one virtual channel at an unspecified bit rate (col. 6, lines 41-45, data may be of any variety, which would include unspecified bit rate traffic).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID ANDREASEN whose telephone number is 571-270-7649. The examiner can normally be reached on Mon - Thu 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2416

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DAVID ANDREASEN
Examiner
Art Unit 2416

/Chi H Pham/
Supervisory Patent Examiner, Art Unit 2416